

**WEST**

Generate Collection

Print

L1: Entry 1 of 2

File: EPAB

Jul 23, 1997

PUB-NO: EP000785297A2

DOCUMENT-IDENTIFIER: EP 785297 A2

TITLE: An aqueous acid bath for the electrodeposition of a shiny and tear-free copper coating and its application

PUBN-DATE: July 23, 1997

## INVENTOR-INFORMATION:

NAME

DAHMS, WOLFGANG

COUNTRY

DE

## ASSIGNEE-INFORMATION:

NAME

ATOTECH DEUTSCHLAND GMBH

COUNTRY

DE

APPL-NO: EP97200458

APPL-DATE: March 19, 1990

PRIORITY-DATA: EP97200458A (March 19, 1990)

INT-CL (IPC): C25 D 3/38; H05 K 3/24

EUR-CL (EPC): C25D003/38

## ABSTRACT:

CHG DATE=19990617 STATUS=O> An aqueous acidic bath for the galvanic precipitation of lustrous copper layer containing at least one copper salt, at least one inorganic acid and, if required a chloride, as well as a compound with an amide group, an organic thio-compound with groups to make it water soluble and, if required an oxygen containing high molecular mass organic compound. The compound with an amide group is a lactam-alkoxylate, which may be substituted if required.

**WEST****End of Result Set**

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L1: Entry 2 of 2

File: DWPI

Jul 23, 1997

DERWENT-ACC-NO: 1997-365962

DERWENT-WEEK: 200015

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TITLE: Strip conductors for printed circuits are strengthened by galvanic precipitation of lustrous copper layer - in acidic aqueous bath that includes lactam-alkoxylate and organic thio-compound

INVENTOR: DAHMS, W

PATENT-ASSIGNEE:

ASSIGNEE

CODE

ATOTECH DEUT GMBH

ATOTN

PRIORITY-DATA: 1997EP-0200458 (March 19, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>EP 785297 A2</u>	July 23, 1997	G	008	C25D003/38
DE 59700942 G	February 10, 2000		000	C25D003/38
<u>EP 785297 A3</u>	August 20, 1997		000	C25D003/38
<u>EP 785297 B1</u>	January 5, 2000	G	000	C25D003/38

DESIGNATED-STATES: AT DE FR GB IT AT DE FR GB IT

CITED-DOCUMENTS: DE 2746938; US 3294578 ; US 3502551 ; US 4336114 ; US 4781801

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 785297A2	March 19, 1990	1997EP-0200458	
DE 59700942G	March 19, 1990	1997DE-0500942	
DE 59700942G	March 19, 1990	1997EP-0200458	
DE 59700942G		EP 785297	Based on
EP 785297A3	March 19, 1990	1997EP-0200458	
EP 785297B1	March 19, 1990	1997EP-0200458	

INT-CL (IPC): C25 D 3/38; H05 K 3/24

ABSTRACTED-PUB-NO: EP 785297A

BASIC-ABSTRACT:

An aqueous acidic bath for the galvanic precipitation of lustrous copper layer containing at least one copper salt, at least one inorganic acid and, if required a chloride, as well as a compound with an amide group, an organic thio-compound with groups to make it water soluble and, if required an oxygen containing high molecular mass organic compound. The compound with an amide group is a lactam-alkoxylate, which may be substituted if required.

USE - Used to strengthen strip conductors of printed circuits (claimed).

ADVANTAGE - The copper layer is free of cracks and fissures even after thermal treatment and has outstanding rupture elongation properties.

ABSTRACTED-PUB-NO:

EP 785297B

EQUIVALENT-ABSTRACTS:

An aqueous acidic bath for the galvanic precipitation of lustrous copper layer containing at least one copper salt, at least one inorganic acid and, if required a chloride, as well as a compound with an amide group, an organic thio-compound with groups to make it water soluble and, if required an oxygen containing high molecular mass organic compound. The compound with an amide group is a lactam-alkoxylate, which may be substituted if required.

USE - Used to strengthen strip conductors of printed circuits (claimed).

ADVANTAGE - The copper layer is free of cracks and fissures even after thermal treatment and has outstanding rupture elongation properties.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: STRIP CONDUCTOR PRINT CIRCUIT STRENGTH GALVANIC PRECIPITATION LUSTRE COPPER LAYER ACIDIC AQUEOUS BATH LACTAM ALKOXYLATED ORGANIC THIO COMPOUND

DERWENT-CLASS: A25 A97 E19 L03 M11 V04

CPI-CODES: A12-W12E; E07-D06; L03-H04E4; M11-A03; M11-B;

EPI-CODES: V04-R02; V04-R03A;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

F012 F013 F014 F015 F016 F017 F019 F410 F423 F433

F443 H521 H523 J5 J521 L660 L699 L9 L941 M210

M212 M272 M281 M283 M320 M413 M510 M521 M530 M540

M782 M903 M904 Q140 Q454 Q463

Markush Compounds

199734-A7301-M

Chemical Indexing M3 \*02\*

Fragmentation Code

A111 A960 C710 H4 H498 H9 K0 K4 K431 M280

M313 M321 M332 M342 M383 M391 M411 M510 M520 M530

M540 M620 M630 M782 M903 M904 Q140 Q454 Q463

Markush Compounds

199734-A7302-M

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1] 018 ; R00351 G1558 D01 D23 D22 D31 D42 D50 D73 D82 F47 ; H0000 ; P0055 ; P0975\*R P0964 F34 D01 D10 ; M9999 M2153\*R ; M9999 M2039 ; H0237\*R Polymer Index [1.2] 018 ; P1707 P1694 D01 Polymer Index [1.3] 018 ; ND01 ; Q9999 Q8742 ; B9999 B5094 B4977 B4740 ; Q9999 Q7454 Q7330

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1997-117476

Non-CPI Secondary Accession Numbers: N1997-304117

=> s ep785297/pn  
L1 1 EP785297/PN

=> d all

L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS  
AN 1997:500884 CAPLUS  
DN 127:127913  
TI An aqueous acid bath for the electroplating of a bright and crack-free  
copper coating and its application  
IN Dahms, Wolfgang  
PA Atotech Deutschland GmbH, Germany  
SO Eur. Pat. Appl., 8 pp.  
CODEN: EPXXDW  
DT Patent  
LA German  
IC ICM C25D003-38  
ICS H05K003-24  
CC 72-8 (Electrochemistry)  
Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 785297	A2	19970723	EP 1997-200458	19900319 <--
	EP 785297	A3	19970820		
	EP 785297	B1	20000105		
	R: AT, DE, FR, GB, IT				
	AT 188516	E	20000115	AT 1997-200458	19900319
PRAI	EP 1997-200458		19900319		

OS MAREPAT 127:127913

AB A process for reinforcing the conducting paths of printed circuits with  
projecting fracture elongations by electroplating with bright, crack-free  
Cu is described. The bath consists of at least 1 Cu salt, an inorg.

salt,

a chloride, a compd. exhibiting an amide group (esp. a substituted lactam  
alkoxylate), an org. thio compd. with groups making it water-sol., and an  
O-contg. high mol.-wt. org. compd. The operating parameters of the  
electroplating process are as follows: pH <1, temp. 15-45.degree.C  
(preferably 25.degree.C), and cathodic c.d. 0.5-12 A/dm2 (preferably 2-4  
A/dm2). In an example, the following bath compn. was used: CuSO4.5H2O

40,

concd. H2SO4 300, 35% HCl 0.1 g/L, and the K salt of

O-ethyldithiocarbonic

acid-S-(3-sulfopropyl) ester 3 mg/L and .epsilon.-caprolactam  
hexaethoxylate 50 mg/L. The cathodic c.d. values in this case (in a Hull  
cell) were 0.15-4 A/dm2 for obtaining a bright Cu electroplate.

ST copper bright electroplating printed circuit reinforcement

IT Polyoxyalkylenes, uses

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(alkyl group-terminated; in electroplating of bright crack-free copper  
on printed circuit boards)

IT Electrodeposition

Printed circuits

(bath for electroplating of bright crack-free copper on printed

circuit

boards)

IT Polyoxyalkylenes, uses

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(in electroplating of bright crack-free copper on printed circuit boards)

IT 7440-50-8P, Copper, uses  
 RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (bath for electroplating of bright crack-free copper on printed circuit boards)

IT 68-11-1, Thioglycolic acid, uses 111-87-5D, Octanol, polyalkylene glycol  
 ethers 7647-14-5, Sodium chloride (NaCl), uses 9002-89-5, Polyvinyl alcohol 9003-11-6 9004-32-4 9004-96-0, Ethoxylated oleic acid 9004-99-3, Ethoxylated stearic acid 9005-00-9, Ethoxylated stearyl alcohol 9016-45-9, Ethoxylated nonylphenol 16208-50-7 17636-10-1, Sodium 3-mercaptopropane-1-sulfonate 18880-36-9 25322-68-3 25322-69-4, Poly(propylene glycol) 26762-67-4D, Octanediol, polyalkylene glycol ethers 27206-35-5 27206-36-6 27738-88-1 35545-57-4, Ethoxylated .beta.-naphthol 49625-94-7 59030-62-5 62408-57-5 64030-13-3 77897-83-7 89960-35-0 93841-14-6 121039-96-1 121039-97-2 129336-71-6 129650-89-1 142755-52-0 142768-83-0  
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
 (in electroplating of bright crack-free copper on printed circuit boards)

IT 7647-01-0, Hydrochloric acid, uses 7664-93-9, Sulfuric acid, uses  
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)  
 (in electroplating of bright crack-free copper on printed circuit boards)

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